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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,909	08/09/2001	Takashige Ohta	70904-56377	4516
21874	7590	07/11/2006	EXAMINER	
EDWARDS & ANGELL, LLP			NGUYEN, JIMMY H	
P.O. BOX 55874			ART UNIT	
BOSTON, MA 02205			PAPER NUMBER	
			2629	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,909

Applicant(s)

OHTA ET AL.

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 04/25/2006.

Claims 1-7 and 9-24 are currently pending in the application. An action follows below:

Claim Objections

2. Claims 7 and 17 are objected to under 37 CFR 1.75(a) because although these claims meet the requirement 112/2d, as explained by the applicants, see pages 27-28 of the amendment, i.e., the decoder circuit operates in accordance with the decoder table, however, "signal according to" in lines 15-16 of claim 7 and in lines 22-23 of claim 17 should be changed to -- signal, in according to --, so as to clarify the claimed invention.

It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the claims, to take into consideration these editorial situations and make changes as necessary.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-7 and 9-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to these claims, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed feature, “reference voltage transmission means for **simultaneously** directly transmitting multiple first voltages from external first reference voltage supply means to the reference voltage chooser circuit” recited in claim 1 (see last 3 lines) and similarly recited in independent claims 2, 3, 5, 7, 9-11, 13, 15, 17, 19, and 22. The original disclosure, specifically Fig. 1, discloses four connections between the external reference power supply circuit 12 and a reference voltage chooser circuit 34, for directly transmitting four first voltages (V_{B1min} , V_{B1max} , and $2V_{B1}$) from the external first reference voltage supply circuit 12 to the reference voltage chooser circuit 34. However, there is no where in the disclosure to teach these four first voltages **simultaneously** transmitted to the reference voltage chooser circuit 34 from the external first reference voltage supply circuit 12, as presently claimed. Further, note that, e.g., while Fig. 2 shows the connections between the scan line drive circuit 15 and thin film transistors (TFTs) 17 of the display panel 20, the scan signals from the scan line drive circuit are **not simultaneously** transmitted to all the TFTs 17 or to the display panel 20, as recognized by a person of ordinary skill in the art. In other words, the connections between two circuits does not inherently imply the voltages or signals simultaneously transmitted by means of the connections. Accordingly, the original disclosure does not contain such description and details regarding to the above underlined feature, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Additionally to claims 9, 10 and 19-24, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed feature, “a

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control circuit for **changing** a decoder table” recited in independent claims 9, 10, 19 and 22. The original disclosure, specifically Fig. 1 and the specification, page 15, lines 2-7, expressly teaches a setup circuit 14 (corresponding to the claimed control circuit) providing a control signal CS3 for **controlling** a decoder circuit 33 which can change a decoder table, i.e., the claimed decoder circuit, but not the claimed control circuit, for changing a decoder table. Accordingly, the original disclosure does not contain such description and details regarding to the above underlined feature, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding to claims 7, 17 and 18, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed feature, “a decoder table is **determined** by the number of tones represented by the sampling signal” (see claim 7, lines 12-13 and claim 17, lines 19-20). There is no where in the original disclosure to disclose a decoder table determined by the number of tones represented by the sampling signal, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claims 1, 2, 7, 11, 12, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanatani et al. (US 5,414,443) hereinafter Kanatani.

As per claims above, the claimed invention reads on the Kanatani reference as follows: Kanatani discloses an image display device (an active matrix LCD apparatus as shown in Fig. 5) comprising pixels (Fig. 5, col. 12, line 28); signal lines (signal electrodes 102, Fig. 5); scanning lines (101) (Fig. 5); a scan signal line drive circuit (300) for supplying scan signals to the scan lines for a vertical scan; and a signal line drive circuit (a circuit including a source driver 2 and a voltage signal supply 7, see Fig. 5) including a sampling circuit (a circuit including elements 20 and 30, Fig. 5) for sampling an image signal (digital video signal, Figs. 5 and 6) so as to generate a sampling signal (outputs of memory 30, Fig. 5 or 6) representative of the number of tones contained in the image signal; **a reference voltage chooser circuit (a circuit including elements 55, 72 and 76, see Fig. 7) for choosing an output in accordance with tones represented by the sampling signal; a decoder circuit (a circuit including elements 40 and 60, see Figs. 6 and 7) for controlling the reference voltage chooser circuit (55, 72, 76), in accordance with the sampling signal, to supply signal line drive signals to the signal lines (see Fig. 7); and reference voltage transmission means (a circuit including elements R_0 - R_7 , 71₀-71₆, 75₀-75₆ and connections, as shown in Fig. 7) simultaneously directly transmitting the first reference voltages (VCC, VDD) from external voltage supply means (see Fig. 7) and including a voltage divider circuit (a circuit including resistors R_0 - R_7 , see Fig. 7) and a buffer circuit (a circuit including buffers 71₀-71₆ and 75₀-75₆, see Fig. 7, col. 11, lines 5-17) for producing a second reference voltage (e.g., +V₆, see Fig. 7). Kanatani further teaches the decoder circuit (40, 60) controlled by a third control signal (a latch strobe signal LS, see Fig. 6 or 7) and using an inherent decoder**

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table for converting the sampling signal to signals controlling the reference voltage choosing circuit (see Fig. 7) and the reference voltage chooser circuit selecting a reference voltage in response to an output of the decoder circuit. Accordingly, the elements in these claims are read in the Kanatani reference.

7. Claims 1, 2, 7, 11, 12, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujita (US 6,107,981, cited in PTO-892 dated 01/26/2005).

As per claims above, the claimed invention reads on the Fujita reference as follows: Fujita discloses an image display device (an active matrix LCD apparatus as shown in Fig. 43) comprising pixels (P11, P12, ..., best seen in Fig. 45); signal lines (data lines X1, X2, ..., see Fig. 45); scanning lines (Y1, Y2, ..., see Fig. 45); a scan signal line drive circuit (scan driver units 30) (see Fig. 45) for supplying scan signals to the scan lines for a vertical scan; and a signal line drive circuit (a circuit 20D as shown in Fig. 44) including a sampling circuit (a circuit including elements 61-64 and 71-74, see Fig. 44) for sampling an image signal (DT1-DTN, see Fig. 44) so as to generate a sampling signal (outputs of memories 71-74, Fig. 44) representative of the number of tones contained in the image signal; a reference voltage chooser circuit (a selector unit 27/91-94, see Figs. 43-44) for choosing an output in accordance with tones represented by the sampling signal; a decoder circuit (a decoding unit 25/81-84, see Figs. 43-44) for controlling the reference voltage chooser circuit (27/91-94), in accordance with the sampling signal, to supply signal line drive signals to the signal lines (X1, X2, ..., see Fig. 44); and reference voltage transmission means (a circuit 59, see Fig. 43) directly transmitting the first reference voltages (the output voltages from buffers 57-1, 57-2 and 57-3, see Fig. 43) at the same time from external voltage supply means (a reference power source unit 57, see Figs. 43-44) and

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including a voltage divider circuit (a circuit including resistors 59R-1 through 59R-4 and their connections, see Fig. 43) and a buffer circuit (a circuit including buffers 59-1 and 59-2, see Fig. 43) for producing second reference voltages (output voltages from the buffers 59-1 and 59-2). Fujita further teaches the decoder circuit (25/81-84) controlled by a third control signal from a control circuit portion (4B) (see Fig. 43) and using an inherent decoder table for converting the sampling signal to signals controlling the reference voltage choosing circuit (see col. 34, line 64 through col. 35, line 44) and the reference voltage chooser circuit (27/91-94) selecting a reference voltage in response to an output of the decoder circuit (col. 35, lines 45-64, see Figs. 43-44). Accordingly, the elements in these claims are read in the Fujita reference.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-6, 9, 13-16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanatani, and further in view of Hisashi (JP 10-326084, see the attached English translation as a reference), hereinafter Hisashi.

As per claims above, as discussed in the above rejection under 35 USC 102, Kanatani discloses all the claimed limitations of these claims except for a first switch of claims 3, 4, 9, 13, 14, and 19-21, a second switch of claims 5, 6, 15, and 16 and a setup circuit of claim 20.

However, Hisashi discloses a related display device comprising a signal line drive circuit which includes a plurality of switches (SW0-SW15) (see Fig. 1), each associating with each

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buffer of a buffer circuit (a circuit including a plurality of buffers as shown in Fig. 1) and capable of turning on and off the power supply (VDD1) supplied to the associate buffer in according with a control signal from a setup circuit included in a gray scale conversion/buffer control circuit (12), thereby controlling the switches in accordance with the number of tones represented by the image signal. See paragraph 0009 of the English translation. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide the switches and a setup circuit in the Kanatani display apparatus, in view of the teaching in the Hisashi reference, because this would reduce power consumption of the apparatus, as taught by Hisashi (see Abstract).

10. Claims 3-6, 9, 13-16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita, and further in view of Hisashi.

As per claims above, as discussed in the above rejection under 35 USC 102, Fujita discloses all the claimed limitations of these claims except for a first switch of claims 3, 4, 9, 13, 14, and 19-21, a second switch of claims 5, 6, 15, and 16 and a setup circuit of claim 20.

However, Hisashi discloses a related display device comprising a signal line drive circuit which includes a plurality of switches (SW0-SW15) (see Fig. 1), each associating with each buffer of a buffer circuit (a circuit including a plurality of buffers as shown in Fig. 1) and capable of turning on and off the power supply (VDD1) supplied to the associate buffer in according with a control signal from a setup circuit included in a gray scale conversion/buffer control circuit (12), thereby controlling the switches in accordance with the number of tones represented by the image signal. See paragraph 0009 of the English translation. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide the switches

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and a setup circuit in the Fujita display apparatus, in view of the teaching in the Hisashi reference, because this would reduce power consumption of the apparatus, as taught by Hisashi (see Abstract).

Response to Arguments

11. Applicant's arguments, see pages 16-21 of the amendment filed 04/25/2006, with respect to the drawing objection in the Office Action dated 01/25/2006, have been fully considered and are persuasive in light of the amendments to claims. The drawing objections of Office Action dated 01/25/2006 have been withdrawn.

12. Applicant's arguments, see page 22 of the amendment filed 04/25/2006, with respect to the claim objections in the Office Action dated 01/25/2006, have been fully considered and are persuasive in light of the amendments to claims. These claim objections have been withdrawn.

13. Applicant's arguments, see page 22-23 of the amendment filed 04/25/2006, with respect to the rejections under 35 USC 112, first paragraph, to claims 3-6, 13 and 14, in the Office Action dated 01/25/2006, have been fully considered and are persuasive in light of the amendments to claims. These rejections have been withdrawn.

14. Applicant's arguments, see pages 23-25 of the amendment filed 04/25/2006, with respect to the rejection under 35 USC 112, first paragraph to claims 7, 17 and 18, have been fully considered but they are not persuasive because the original disclosure, specifically pages 14-15 and 26-31 of the specification, expressly teaches "the control means may control the **switching** between the decoder tables according to the number of tones represented by the image signal", which is different from "a decoder table is **determined** by the number of tones represented by

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the sampling signal” of claims 7 and 17. It is suggested that the applicant should use the same feature(s) disclosed in the specification.

15. Applicant’s arguments, see pages 25-27 of the amendment filed 04/25/2006, with respect to the rejections under 35 USC 112, first paragraph, as failing to comply with the enablement requirement to claims 7, 9, 10 and 17-24, in the Office Action dated 01/25/2006, have been fully considered and are persuasive in light of the amendments to claims. These rejections have been withdrawn.

16. Applicant’s argument, see pages 27-28 of the amendment filed 04/25/2006, with respect to the rejection under 35 USC 112, second paragraph, to claims 7, 17 and 18 in the Office Action dated 01/25/2006, have been fully considered and is persuasive. This rejection has been withdrawn; however, claims 7 and 17 should be amended as suggested in the Claim Objection section above.

17. Applicant’s arguments, see page 28 of the amendment filed 04/25/2006, with respect to the rejection under 35 USC 112, second paragraph, to claims 9 and 19-21 in the Office Action dated 01/25/2006, has been fully considered and is persuasive in light of the amendments to claims. This rejection has been withdrawn.

18. Applicant's arguments, see pages 28-35 of the amendment filed 04/25/2006 with respect to the rejections under 35 USC 102(b) and 103(a) in the Office Action dated 01/25/2006, have been fully considered but they are not persuasive. Applicants argue that the Kanatani reference does not teach that multiple first reference voltages are to be provided directly to the voltage chooser circuit 55 at the same time, see the amendment, page 29, last paragraph. Examiner disagrees because as discussed in the rejection above, the claimed reference voltage chooser

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circuit corresponds to a circuit including elements (55, 72 and 76), rather than a circuit 55 by itself, and the claimed reference voltage transmission means corresponds to a circuit including elements (R_0 - R_7 , 71₀-71₆, 75₀-75₆) and connections as shown in Fig. 7. Further, Applicants argue that the reference voltage V_c is not provided to the voltage chooser circuit 55 at all. Examiner disagrees because (i) the reference voltage V_c does not correspond to one of the first reference voltages and (ii) the voltage level selector circuit itself does not correspond to the claimed reference voltage chooser circuit.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
July 7, 2006

A handwritten signature in black ink, appearing to read 'Jimmy H. Nguyen', with a stylized flourish at the end.

Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629